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ABSTRACT

A method for assessing the cognitive and linguistic stages of second language learning in individuals is discussed. The approach is based on a psycholinguistic theory that views language learning as a process of concept formation in three domains: cognitive, cultural, and linguistic. According to the model presented, Spanish-English bilingual children construct two representational systems: one universal system common to the two languages, for knowledge of nonverbal, symbolic, and conceptual semantic categories, and a second for symbolic and verbal conceptual categories unique to a specific language and culture. Thus, conceptual development in bilingual children is represented through abstract nonverbal categories and also through verbal semantic categories. Application of the model for identification of gifted and talented children is illustrated in an experiment with 30 bilingual Hispanic kindergartners, and a case study resulting from that application is presented. The case study includes demographic information, teacher ratings of English language proficiency, results of standardized tests, a teacher's qualitative description of the student's academic and social behavior in the classroom, a parents' qualitative description of the child's talents and abilities, and a descriptive summary of the evaluation of his verbal and nonverbal conceptual development in both Spanish and English. (MSE)

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NABE 93 Conference
Symposia
Influence of Cognitive, Linguistic, and Cultural Factors on the Assessment of Bilingual Special Students

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TITLE OF THE PRESENTATION

How to Differentially Diagnose Normal Second Language Learning from True Handicapping Conditions: A Qualitative-Developmental Approach

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Abstract

A discussion of a developmental qualitative method for the assessment of cognitive and language stages of second language learning will be discussed in ligth of a conceptual learning approach. This approach is based on a psycholinguistic theory that views language learning as a process of concept formation in three domains: cognitive, cultural, and linguistic. After a brief description of the model in which the assessment qualitative method is based, a case study that illustrates the model and method of assessment will be presented. The case study includes background family information on language use at home, parents' and teacher's ratings of the child's language proficiency in Spanish and English, parents' and teachers' qualitative descriptions of the child's talents and abilities in the school and home environment.

Theoretical Framework: Description of the Underlying Model for the Qualitative Assessment Method of Verbal and Non-Verbal Conceptual Abilities

Introduction

It is considered that there are two major methodological problems in the area of assessment of bilingual students. The first methodological problem is the need to control external factors influencing language and cognitive development in first and second language (e. g. , cultural and linguistic differences, level of socioeconomic status, age, attitudes toward educational values) when constructing assessment methods and reaching a differential diagnosis. Internal genetic or neurological factors as causes of genuine handicapping conditions are the common conclusion that evaluators reach when using standardized tests. These quantitative methods based on the medical model do not control for external factors affecting cognitive and language development in bilingual students. Reaching a differential diagnosis between genuine handicapping conditions or disabilities and the normal process of second language learning requires qualitative methods that take into consideration cognitive, linguistic, and cultural factors affecting the development of bilingual students.

The second methodological problem in the area of the assessment of bilingual students is the need for robust psycholinguistic models that consider cognitive, cultural, and linguistic variables. These two methodological problems are related, as the external factors affecting cognitive and language development in bilinguals correspond to cultural, linguistic, and cognitive domains considered in a psycholinguistic theory, which will be the basis for developing assessment instruments with construct validity. Thus, at the

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theoretical level, construct validity depends on a diagnostic method based on a model that considers cognitive, cultural, and linguistic variables; and at the applied level, valid and reliable qualitative assessment methods are needed for diagnosing bilingual children's language and cognitive development.

Objectives

The theoretical objective of this study is to validate a model that explains the influence of cognitive, cultural, and linguistic factors on verbal and non-verbal conceptual development in bilingual Spanish/English children.

The educationally applied objective is to test empirically a derived diagnostic method, using classification problem-solving tasks representing non-verbal concepts, sociocultural symbolic meanings, and linguistic structures.

This method can (a) accurately identify gifted and talented bilingual Hispanic kindegarters; and (b) be adapted for use with children from other culturally and linguistically diverse groups across the U. S.

Model

I propose a new holistic model to explain the influence of cognitive, cultural, and linguistic factors on semantic categopry formation. This model states that concepts are represented in three ways: (a) non-verbally as abstract categories (i. e. , basic and non-basic semantic categories), (b) symbolically by meanings of sociocultural conventions (i. e. , familiar and unfamiliar words, and similar and different linguistic structures and markers for gender), and (c) linguistically by structures and markers (i. e. , animate object referents as animals, and inanimate object referents as food, natural and arbitrary linguistic gender respectively).

According to this holistic model, it is conceptualized that bilingual children construct: (a) one universal representational system common to Spanish and English for knowledge of non-verbal, symbolic, and verbal conceptual categories; and (b) a second representational system for symbolic and verbal conceptual categories unique to a specific language and culture. Thus, conceptual development in bilingual children is represented through abstract non-verbal categories and also through verbal semantic categories.

Application of the Model for the Identification of Gifted and Talented Bilingual Hispanic Kindergartens

Applied Problem

Presently, there is an applied need for developing qualitative asssessment methods that can accurately identify gifted and talented Hispanic bilingual children. Minority children are underrepresented in the gifted classes of major school districts across the U. S. nation. This underrepresentation is due to the use of standardized instruments that do not take into consideration cultural and linguistic factors affecting cognitive development in bilingual children. Under the request of a large school district in the Southwest region, this new holistic qualitative method was used as an individualized assessment for placing bilingual Hispanic students in gifted classrooms.

Method

Subjects. The pool of subjects consists of 30 Hispanic, Spanish/English, bilingual. kindergarten students attending regular classes in a large school district in the Southwest region of the U. S. These children were referred for further individualized testing based on (a) a qualitative group screening procedure using observations of spatial, linguistic, and quantative abilities (developed by Dr. June Maker based on Gardner' s theory of the seven intelligences); (b) teachers' and parents' ratings of students' creative behaviors; and (c) students' sample of classwork.

Instruments. I created five verbal (labelling, defining, and verbal justification for sorting) and non-verbal (sorting and category clue) classification tasks. Children were given manipulable objects that represent animate and ininimate items, corresponding to 14 experimental stimuli groupings representing cognitive, cultural, and linguistic variables.

Case Study

Background information: Home Language Survey

NAME: Noah AGE: YEARS: 5 MONTHS: 10

Birthdate: 1-26-87

GRADE: Kindergarten

CHILD'S FIRST LANGUAGE: English

CHILD'S SECOND LANGUAGE Spanish (the child uses codes swithching -some sentences in Spanish and some in English- when he communicates with grandparents, who speak little English).

PARENTS LANGUAGE PROFICIENCY: Self-reports of both parents indicate proficiency of both Spanish and English.

PARENTS RATINGS OF CHILD'S LANGUAGE PROFICIENCY: for English "above average" language proficiency, for Spanish "not quite adequate" in comparison with peers.

FAMILY BACKGROUND: Parents were born in Arizona, the child is a third generation Mexican-American.

BIRTH POSITION: Youngest of 5 siblings (14 y. -male triplets-, and a female 11 year-old.)

HOME LANGUAGE: Spanish and English

Background information: Teacher's ratings of the child's language proficiency in English

Teacher: Monolingual English School: Southwest Date: 12-1-92
Language: English

Phonology:	3
Vocabulary:	5
Syntax and Grammar:	3
Academic Language	5
Social Language	4

Results of standardized tests

Ravens Color Matrices

79 Percentile, 7 Stanine

Language Assessment Scales (LAS)

Spanish 1 English 4

Teacher's qualitative description of Noah's academic and social behavior in the classroom.

TEACHER: Monolingual English SCHOOL: Southwest

Verbal abilities: The teacher describes Noah as a higly-verbal child who asks many questions and tells many anecdotes related to academic activities.

Math abilities: The teacher considers that Noah's greatest abilities are in math. Noah performed at the highest developmental levels in logical operations (i. e. , seriation, conservation of number, and classification)in his class in comparison to his peers.

Artistic abilities: Noah likes to draw, especially in his journal. This is the only activity in which he likes to work alone. He works intently in his journal, taking a lot of time making complete illustrations.

Social abilities: Noah is described by his teacher as enthusiastic regarding all aspects of school. He is very admired by his peers and is competitive in a positive way, because he likes to cooperate with others but he takes the leadership role. Noah is also described as a rist-taker who uses trial and error, and also as a child who becomes actively involved and perseveres in academic activities.

When Noah's teacher was asked to select adjectives that describe him, he is described as an active learner, who is creative, observant, and curious.

Parents' qualitative description of Noah's talents and abilities

Social abilities: Noah's parents describe him as been creative, talkative, and outgoing. He has older friends because of his brothers and sister, and he makes new friends easily as everybody seems to like him. He likes to perform and ask questions to people, he makes people laugh with his anecdotes. Parents report that when interacting with other children, Noah likes to be in charge, to organize the games, and he gets along well with children when playing. When by himself, Noah likes to draw and to do homework; but he prefers to interact with other children when playing.

Language abilities: Parents report that Noah only understands Spanish and speaks a little Spanish with his grandparents, whose first language is Spanish and speak only a little of English. Parents report that his other siblings speak fluently Spanish, and eventhough they have tried to teach Spanish to Noah he has began to speak a little Spanish only recently.

When asked to circle the adjectives that describe their child, Noah's parents describe him as friendly, observant, curious, talkative, energetic, independent, cooperative, imaginative, and creative.

Conclusions

Eventhough some bilingual children have functional command of the English language assessing them through a qualitative method that encompasses cultural and linguistic factors gives them the opportunity to show their potentials. Due to the number of external factors (e. g. , cultural and linguistic differences, socioeconomic level) that need to be taken into control when developing assessment instruments for cognitive and language development, language minority children do not qualify for gifted and talented educational programs when asssessed through standardized instruments.

High Verbal and Non-verbal Abilities, Dominant English Case

SUMMARY OF EVALUATION ON VERBAL AND NON-VERBAL CONCEPTUAL DEVELOPMENT IN SPANISH AND ENGLISH
English Administration

CHILD'S NAME: Noah

EXAMINERS' NAMES: Constantina Vekiari and Andrea Paquette

DATE OF EXAMINATION: 11/24/92

LANGUAGE USED FOR EXAMINATION: English

SET USED: 2

Observation of Behavior: This young boy was very cooperative, enthusiastic, and focused his attention throughout the evaluation process. He has command of ther English language and he is very friendly and talkative. He ellaborated on all his answers, by making connections of the objects and tasks to his own past personal experiences. For example, when he saw the alligators, he told the examiners a detailed story about the rescue of a person that was bitten by an alligator that he watched on television in 911.

Diagnosis: This child showed a potential above the developmental expectations for his chronological age (concrete level). His performance shown many creative comparisons of objects using shape, color, and size in imaginative and unusual ways. His highest level potential is shown in verbal definitions or descriptions of objects and its unique comparisons with his own experiences in the real world.

General Diagnosis
General Level
Verbal Conceptual Development
Production: Functional level
Comprehension: Concrete level

Non-Verbal Conceptual Development
Production: Functional level
Comprehension: Concrete

Gender Level: Not applicable for some
Verbal Conceptual Development
Production: Concrete level
Comprehension: Functional level

Non-Verbal Conceptual Development
Production: Concrete
Comprehension: Functional level

Recommendation: We recommend that this young boy should be placed in the GATE program, as he has shown a high potential at the verbal level to form concepts above his chronological age. Noah is very creative with language, and he shows an advance command of the English language for his chronological age too.

Examples of Noah's Performance in the tasks: English administration

- **Animals: Defining Production**

Item: Tiger: "Black and orange, looks like a lion, because a lion has ....(points to marks)", if you color out the black lines it would be a lion".

Performance evaluation on Defining Production: **Concrete level** due to the presence of comparisons and similarities found between animals that belong to the same family.

- **Food: Defining Production**

Item: Tomato: "They are red and green, with things on top. It's juicy, with little lines like a pumpkin but has to be orange".

Performance evaluation on Defining Production: **Perceptual level** as the child was showing awareness of comparisons between objects in shape, form, and color.

- **Animals: Verbal Justification for Sorting task**

Item: alligator:. When the child was asked why he had grouped the animals in that way, he responded: "The alligator mommy is fat, the daddy isn't" , and then the child compares the two animals to see which is bigger " (in reality both alligators are exactly the same).

Performance evaluation on Verbal Justification for Sorting: **concrete level**, as the child forms to parallel lines of animals that corresponded in kind, by size, and by gender (mommies and daddies).

High Verbal and Non-verbal Abilities, Dominant English Case

SUMMARY OF EVALUATION ON VERBAL AND NON-VERBAL CONCEPTUAL DEVELOPMENT IN SPANISH AND ENGLISH
Spanish Administration

CHILD'S NAME: Noah
EXAMINERS' NAMES: Patricia Bauerle and Maria Felix-Holt

DATE OF EXAMINATION: 12/2/92 SET USED: 1

LANGUAGE USED FOR EXAMINATION: Spanish (the child understood the instructions in Spanish, but responded almost always in English. using only few Spanish words -code mixing-). All children were administered twice the tasks, trying to adapt to the children's language proficiency levels in both languages for language of administration, with the purpose of giving every child two opportunities for assessment.

Observation of Behavior: This young boy showed a lot of motivation and non-verbal creativity. He was always helpful for arranging the materials and cooperating with his responses. Noah was very easy to engage, very polite, and friendly. He asked a number of questions about the procedure and about the examiners themselves. Upon seeing the stimuli for the task, he informed the examiners of the different tasks he had done when he had been assessed in English and verbally cited most of the animals and food he has used the last time; which seemed to indicate that he had strong visual and verbal memory abilities.

The child had a high verbal ability, as he was aware of verbal subcategories (dalmatias are dogs), and also of different classifications of animal families (e. g. , he noted that "a gorilla resembled a monkey"). However, Noah also seemed to greatly depend on non-verbal communication. For example, when questions were asked about the different objects, in addition to providing a verbal description he frequently acted out how the animals do; showing how some animals would fight with others,how some would prey on others, and what some were shown to do in the movies. It seemed like the child was frustrated with not being able to find the right words to convey , as the recorder was being frustrated with not being able to record the child's functional sounds and nonverbal actions. Yet, the boy always seemed so persistent in conveying his meaning through whatever non-verbal communication he could use. The child was centered around "the fat" theme for both animals and food.

Diagnosis: In the definition tasks the child paid attention to details of objects, and described how the representation of objects looked like, and even went beyond describing the imaginative representations that he was visualizing in his mind (e. g. , the toy steack represented as cooked, became in his imagination a raw steack that resembled because of its shape "a penguin with sunburn"). The child was also performing at a metalinguistic level for questions asking for the change of gender of objects. He recognized the difference in meaning very quickly and correctly, and used both verbal and non-verbal communication, with greater effort being put in non-verbal actions, to explain what the Spanish word would mean if the gender was changed. In the category clue task the child developed his own system by arranging the objects around the doll pictures. He was always busy transforming the food into new types of foods. For example, he used the triangular shape foods (i. e. , pizza, pie) to make a sandwhich with the largest pieces of food as the outer pieces of bread. Overall this young child performed at the **concrete level for non-verbal tasks**, and at the **metalinguistic level for verbal tasks.**

General Diagnosis
General Level
Verbal Conceptual Development
Production: Metalinguistic and Concrete levels
Comprehension: Metalinguistic level

Non-Verbal Conceptual Development
Production: Concrete level
Comprehension: Concrete level

Gender Level
Verbal Conceptual Development
Production: Metalinguistic level
Comprehension: Metalinguistic level

Non-Verbal Conceptual Development
Production: Metalinguistic level
Comprehension: Metalinguistic level

Recommendation: Noah is a child who can benefit greatly from and enriched program, like the one offered in GATE. He could further develop the strenghts he has already developed, and to make use of the great amount of creativity, imagination, adaptability, helpfulness, and energy he seems to possess.

Examples of Noah's Performance in the tasks: Spanish administration

• **Animals: Defining Production**
Item: Dalmatian dog: "A dog. This is a dalmatian. I have one, but he doesn't have dots on his face. He's all black on his face. They're fat in the middle, have long legs, a little tongue, and big ears. **Se parece** like a cat.....fat".

Performance evaluation on Defining Production: **Concrete level** due to the presence of categories (dogs) and subcategotries (dalmatian).

• **Food: Defining Production**
Item: Steack: "You cook it in the fire. It's like a cat's face, big ears, and the eyes are here, the nose is here, the whiskers are here. It' s like a carpet, one of those things you clean your feet on when you go into the house. It's like a tortilla because it's flat. The dog can't eat the bone because the bone will start moving. It' s black and white and red all over (he is imagining how the steack would look like when not cooked. In reality the stimulus is representing a cooked steack, which is brown). A penguin with a sunburn".

Performance evaluation on Defining Production: **Metalinguistic level** as the child was showing awareness of comparisons in shape, form, and meaning that triggered playing with language for creating jokes.

• **Food: Verbal Justification for Sorting task**
Item: "la pizza". When the child was asked if the gender can be changed, question: "Can I call la pizza el piso? The child responded: "No, because "el piso" is the floor"

Performance evaluation on Verbal Justification for Sorting: **Metalinguistic level**, as the child could understand that a change in gender would also imply a change of meaning.